

2	[01] (Currently Amended) An architecture A method and apparatus for the measurement of
3	photomask optical path difference, the apparatus comprising:
4	A spatially coherent light source;
5	An interferometric beam processing module;
6	An optical microscope; and
7	A photosensitive detector;
8	Wherein said module is disposed to receive and divide light from said light source into a
9	number of phase-coherent light beams, each of which passes through a separate
10	an aperture;
. 11	Wherein said microscope is disposed to image the multitude of said apertures in said
12	module with a given demagnification onto a photomask in order to create a
13	multitude of phase probes; and
14	Wherein said detector is disposed to receive the transmitted fringe intensity pattern
15	caused by the interference of the multitude of said phase probes;
16	and the method comprising the step of measuring the shift in interference fringe patterns
17	recorded for different phase probe positions on the photomask.
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19	[02] (Original) The apparatus of claim 1 wherein said light source is a laser with a wavelength
20	that is approximately the same as the actinic wavelength of said photomask.
21	[03] (Original) The apparatus of claim 1 wherein said optical demagnification of said
22	apertures is greater than 50.
23	[04] (Original) The apparatus of claim 1 wherein said module is of the Mach-Zehnder (MZ)
24	interferometer type.

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1	[11] (Currently Amended) An architecture A method and apparatus for the measurement of
2	photomask optical path difference, the apparatus comprising:
3	A spatially coherent light source;
4	An interferometric beam processing module;
5	An optical microscope; and
6	A photosensitive detector;
7	Wherein said module is disposed to receive and divide light from said light source into
8	number of phase-coherent light beams, each of which passes through a separate
9	an aperture;
10	Wherein said microscope is disposed to image the multitude of said apertures in said
11	module with a given demagnification onto a photomask in order to create a
12	multitude of phase probes; and
13	Wherein said detector is disposed to receive the reflected fringe intensity pattern
14	caused by the interference of the multitude of said phase probes;
15	and the method comprising the step of measuring the shift in interference fringe patterns
16	recorded for different phase probe positions on the photomask.
17	[12] (Original) The apparatus of claim 11 wherein said light source is a laser with a
18	wavelength that is approximately the same as the actinic wavelength of said photomask.
19	[13] (Original) The apparatus of claim 11 wherein said optical demagnification of said
20	apertures is greater than 50.
21	[14] (Original) The apparatus of claim 11 wherein said module is of the Mach-Zehnder (MZ)
22	interferometer type.

- 1 [15] (Currently Amended) The apparatus of claim 11 wherein the relative optical phase
- between said phase-coherent light beams phase probes may be varied by suitable adjustments
- 3 to said interferometric beam module.
- 4 [16] (Original) The apparatus of claim 11 wherein said module is a dual-aperture screen.
- 5 [17] (Canceled).
- 6 [18] (Original) The apparatus of claim 11 wherein said detector is a UV-sensitive CCD
- 7 camera.
- 8 [19] (Original) The apparatus of claim 11 wherein said detector is a photomultiplier tube
- 9 (PMT).
- 10 [20] (Currently Amended) The apparatus of claim 11 wherein the number of said apertures
- and said phase-coherent light beams phase probes is two (2).
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